19-287

IN THE

Circuit Court of the United States,

IN AND FOR THE

Southern District of Ohio.

RICHARD A. TILGHMAN,

VS.

MICHAEL WERK.

OPINION OF COURT.

Crissy & Markley, Printers, Goldsmiths Hall, Library Street, Philadelphia.

UNITED STATES CIRCUIT COURT.

SOUTHERN DISTRICT OF OHIO.

RICHARD A. TILGHMAN

VS.

MICHAEL WERK.

1. Plaintiff's invention consists in a process for manufacturing free fat acids and glycerine, by the action of water in a liquid state above the ordinary boiling point of water, and consequently under pressure on fatty bodies or substances.

2. The invention is based on a discovery made by plaintiff that water highly heated and under pressure, *of itself*, possesses a chemical power of decomposing fat bodies into their elements, fat acid and glycerine.

3. This invention and discovery are not contained in the books relied on by the defendant. Regnault's and Payen's process acts by destroying the glycerine, and does not mention highly heated water under pressure as the decomposing agent, and is therefore unlike the plaintiff's.

4. Milly & Motard's process, described in Roret's Encyclopedia, although using a close boiler containing fat and water under a high temperature and pressure, yet does not rely on the chemical decomposing power of highly heated water, but requires the presence of lime to combine with all the fat, and thus prevents the formation of any free fat acid, and is therefore unlike the plaintiff's.

5. Arthur Dunn's process by use of soda is similar to that of Milly & Motard, and unlike the plaintiff's.

6. The plaintiff's invention is a useful and practical one.

7. The description of the process is sufficient in the specification. A fixed rule is given, which will certainly insure success, and it is also made known that certain variations may be made without changing the process.

8. A principle and a process distinguished. The invention claimed by plaintiff is a process, not a principle.

9. The process used by defendant is an infringement of plaintiff's patent:

   I. Defendant uses and requires water in his process.

   II. That water is highly heated and under pressure.

   III. That water decomposes a certain portion of the fatty body into free fat acid and glycerine, and to this extent infringes.

   IV. The defendant also employs six or seven pounds of lime to one hundred pounds of fat, and thus converts a certain portion of fat into lime soap, and that portion of the operation does not infringe.

10. In a patent for a process, a defendant cannot avail himself of the process to a partial extent without infringing.

11. The amount which the plaintiff should recover is to be measured by the profit which the defendant has derived from the adoption and use of the plaintiff's invention.

This was a suit in equity brought by R. A. Tilghman upon Letters Patent of the United States, granted to him October 3, 1854, for a new and useful improvement in processes for purifying fatty bodies against Michael Werk. The bill of complaint charged that the defendant had infringed the exclusive right secured to him by the Letters Patent, by the use of a certain apparatus and process employed by the defendant in the manufacture of fat acid at his establishment in Cincinnati. The defendant alleged that the plaintiff was not the original and first inventor of the process for which the Letters Patent were granted to him, but that substantially the same process was described in

Payen's Chemistry in the year 1851, in Regnault's Chemistry published in the year 1853, and in Roret's Encyclopedia. The defendant also denied that the process or plan employed by him was an infringement of the complainant's Letters Patent, but, on the contrary, alleged it to be a new and independent invention, for which the defendant obtained Letters Patent, October 5, 1858.

A large amount of scientific testimony was taken. The case came on for final hearing on bill, answer and proofs before Justice McLean and Judge Leavitt, sitting at Cincinnati, November, 1860. It was argued at great length, for the complainant, by Henry Stanberry, and George Harding, Esquires, and for respondents by Charles Fox and Nathaniel McLean, Esquires.

The case was held under advisement, and Judge Leavitt delivered the following opinion at a special term of the Court holden February 21st, 1862. Justice McLean had, as will appear by the opinion, expressed, prior to his death, a concurrence of views with those held by Judge Leavitt:

Opinion of the Court delivered by LEAVITT, J.

As explanatory of the delay which has occurred in the decision of this case, it is proper to remark that it was argued before Judge McLean and myself, near the close of the October Term, 1860. A short time after the argument, and before he could prepare an opinion, that distinguished and lamented Judge left this city to take his place in the Supreme Court at Washington. After some conference in relation to the case, from which it was apparent there was an entire concurrence of views between the Judges as to all the principal points, it was arranged that Judge McLean should take the papers, and write an opinion at Washington. Owing probably to his feeble health through the winter, resulting in his death, he did not, so far as I am informed, state his views in writing, and now, under some disadvantages certainly, it has devolved on me to announce the conclusions of the Court.

The plaintiff, Tilghman, has filed his bill in equity, claiming to be the first and original discoverer of a new and useful improvement in the process for the decomposition of fatty substances and oils for practical purposes. He alleges that the exclusive right to his invention is secured to him by Letters Patent granted by the United States, dated the 3d of October, 1854; and that the defendant Werk has violated the right thus secured to him under his patent, by the use of a certain apparatus and process in the manufacture of fat acids at the City of Cincinnati. The bill prays for a discovery as to the matters alleged, and such relief as the equity of the case may require.

In his answer, the defendant denies, in the first place, that the plaintiff is the first and original discoverer of the method or process described in his specification and covered by his patent; and avers substantially the same process was known long before the date of the plaintiff's patent, and in practical use in France, and is described in several published works in that country, the authors and compilers of which are named and specifically referred to. The defendant also denies any infringement of the rights of the plaintiff under his patent, and avers that the method or process used by him is essentially different from that claimed and described by the plaintiff, and is the product of his own invention, and is secured to him by a patent granted the 5th of October, 1858. The answer further alleges, in substance, that the improvement claimed by the plaintiff is of no value, and incapable of being practically and economically used by manufacturers.

The plaintiff, in his specification, describes the nature of his improvement as follows: "My invention consists of a process for producing free fat acids and solution of glycerine from those fatty and oily bodies of animal and vegetable origin which contain glycerine as their base. For this purpose, I subject these fatty or oily bodies to the action of water, at a high temperature and pressure, so as to cause the elements of these bodies to combine with water, and thereby obtain, at the same time, free fat acids and solution of glycerine. I mix the fatty body to be operated upon, with from a third to a half of its bulk of water, and the mixture may be placed in any convenient vessel, in which it can be heated to the melting-point of lead, until the operation is complete. The vessel must be closed, and of great strength, that the requisite amount of pressure may be applied, to prevent the conversion of the water into steam."

This comprehends substantially the nature of the invention claimed by the plaintiff as new and original. The other part of the specification describes minutely and with great clearness, the apparatus and appliances by which the proposed result is produced. It is not necessary to notice critically the process as described, as the defendant's answer takes no exception to the sufficiency of the specification.

As to the originality of the invention claimed by the plaintiff and covered by his patent.

It appears from the above extract from the specification, that the invention of the plaintiff consists in a process for the manufacture of fat acids and glycerine, by the action of water, in a liquid state, above the ordinary boiling-point of water, and consequently under pressure, on fatty bodies or substances. The invention is based on the discovery claimed by the plaintiff to be original with him, that water, under the conditions above set forth, of itself possesses a chemical power of decomposing or separating fat bodies into their elements, fat acid and glycerine.

Now the answer of the defendant sets up, that the same process is described in Payen's Chemistry, published in the year 1851; in Regnault's work on Chemistry, published in 1853; and in Roret's Encyclopedia. These are all French publications, of dates anterior to the date of the plaintiff's patent; and under the patent laws of the United States, if any of the processes described are identical with the invention claimed by plaintiff, it is fatal to the validity of his patent. By reference to these publications, and to the testimony of the distinguished experts, which is before the Court, the influence seems to be irresistable, that there is a substantial difference between the processes they describe, and that patented to the plaintiff. Neither of the works referred to, describe or notice, any such chemical decomposing power, pertaining to water at a high temperature, and under pressure, which constitutes the main elements in the discovery claimed by the plaintiff. Regnault and Payen describe a process of decomposition consisting in a separation of fat acids by the destruction of the glycerine, one of the elements of the fatty body, but do not mention the use of water highly heated, under pressure, as the decomposing agent. In the description contained in Roret's Encyclopedia, lime is required as the decomposing agent, in quantities sufficient to effect the separation of the fatty body, into fat acid and glycerine. No allusion is made to the process described by the plaintiff, and which is the dis-

tinguishing feature of his invention. In confirmation of this view of the publications referred to, and as conclusive of the point under consideration, it may be remarked that the experts examined on behalf of the plaintiff—Professors Booth, Rogers and Genth, gentlemen of distinguished reputation in the walks of science, and who profess to be acquainted with the French works referred to, unite in saying, that they describe no processes resembling or identical with that described by and patented to the plaintiff. They also agree in saying that in so far as their knowledge and research extend, there is no publication extant which describes the plaintiff's process, and in their judgment, it is new and original with him; and even the scientific gentlemen who have testified as experts in behalf of the defendant, do not say that they have knowledge of any work or publication, dating back of the plaintiff's patent which describes his process The invention of Milly & Motard, described in Roret's Encyclopedia, is perhaps a nearer approximation to that of the plaintiff than any other referred to by the defendant. They describe a close boiler, in which the fat and water were subjected to the action of high temperature and pressure. But in their process they do not rely on these agencies to affect the separation of the elements of the fatty bodies, but require lime in sufficient quantities, to combine with all the fat, and thus prevent the formation of any free fat acid.

So too it appears, that in the patent of Arthur Dunn, described in Vov. II, 2 series of the Repertory of Patent inventions, he used a steam tight vessel, and applied a temperature of 310 deg. Fahrenheit, and by the use of soda, produced soda soap, and not free fat acids.

It is obvious that in all the descriptions of these processes, they are essentially different from the plaintiff's invention, by whose apparatus free fat acid is produced solely by the chemical action of water at a high temperature under pressure.

It is certainly true that some of the discoveries referred to, especially Milly & Motard, and Dunn, approached very nearly to the discovery of the plaintiff; but as certainly stopped short of the object. They failed to reach the important chemical truth, that highly heated water under pressure will produce from fatty bodies, free fat acid and solution of glycerine, without any other agency.

This view is most convincingly exhibited by the testimony of

the experts, who have been examined as witnesses. It is also sustained by the Commissioner of Patents, who, in his note to the defendant Werk, of June 26th, 1858, rejecting his first application for want of novelty distinctly informs him, that Mr. Tilghman is the acknowledged discoverer of this process.

I have no hesitation in concluding that the attempt to invalidate the plaintiff's patent for want of originality in his invention has wholly failed.

The patent, however, is assailed on other grounds, which I will briefly notice.

1. It is insisted that while it may be practicable to separate fatty bodies by the action of heated water, according to the plaintiff's process, it cannot be economically and practically used, and therefore the invention patented is of no utility. The defendant in his answer, while he does not take issue distinctly on the utility of the invention, alleges that it is liable to two objections, which prevent it from being of practical use. The first is, that the great heat required to produce the result proposed, will speedily destroy, or greatly injure the tank and pipes employed; and, second, that so much time is required in completing the process, that practically it is of no utility.

As to this point, it is only necessary to advert to the familiar principle in the law of patent rights, that a presumption of the utility of an invention arises from the grant of the patent; and this presumption can only be repelled by clear proof that it is utterly worthless. There is not only no such evidence in this case, but it is proved upon actual experiments, that the plaintiff's process has been successfully applied to practical use. What may be the degree of utility is not an inquiry pertinent to the question under consideration, but may, perhaps, form a proper subject of inquiry hereafter, if it is proved that the defendant has infringed the plaintiff's patent, in estimating the quantum of injury which has been sustained.

2. It is also contended by the defendant's counsel, that the patent of the plaintiff is a nullity, because it does not describe the process with sufficient precision, by which the result claimed is to be produced, and that no one though skilled in the business, could determine, except by experiment, the precise degree of heat required.

On this point it may be remarked, in the first place, that the

defendant has offered no evidence tending to prove the existence of any practical difficulty in the use of the processes described in the plaintiff's specification. The learned experts who have testified for him, say they have tested the practicableness of the described processes, by actual and successful experiments. And it also appears from the evidence of the witnesses Ropes and Grant, that they have actually produced free fat acids and solution of glycerine, by the plaintiff's process, making no mention of any difficulty from a want of exactness in the specification, as to the degree of heat required. And referring to the specification, it seems to be sufficiently explicit to answer the requirements of the statute, construed in the liberal spirit in which, by repeated judicial decision, this instrument should be viewed. The language of the specification in reference to the temperature of the heated water, is as follows.: "The melting "point of lead has been mentioned as the proper heat to be "used in this operation, because it has been found to give good "results. But the change of fatty matter into fat acid and "glycerine, takes place with some materials (such as palm oil), "at or below the melting point of bismuth, yet the heat has "been carried considerably above the melting point of lead, "without any apparent injury, and the decomposing action of "water becomes more powerful as the heat is increased."

Now it is well known that lead melts at 612° Fahrenheit, and bismuth at about 510°. There is, then, a precise degree of heat—612°—recommended and prescribed as sure to produce a good result in changing common fatty bodies to acid and glycerine—and a lower temperature—the melting point of bismuth—510°—when palm oil or similar substances are to be operated upon. And it clearly does not render the specification liable to objection for want of certainty and clearness, that the patentee states that the degree of heat may be carried above these figures without injury. Nor is the sufficiency of the description impeached by the fact that the desired result has been produced at a lower temperature of water. There is a fixed rule given which may be safely followed, while it is made known that the manufacturer may safely depart to some extent, from this rule, if from experiment and a just exercise of discretion, it should be expedient to do so. This specification is not, therefore, liable to the objection urged in argument, and so often referred to in the books, that the process described cannot be carried out without the necessity of previous experiments.

3. Another ground of objection to the validity of the patent, is that it is merely for a *principle*, and not for a process, and therefore void.

It seems to the Court this objection is fully met by a reference to the words of the patentee, in describing his invention. In the introductory part of his specification, he claims to have invented "a new and improved mode of treating fatty and oily bodies, and continues as follows: "My invention consists of a *process* for producing free fat acids and solution of glycerine, &c.

Now it is well settled, and needs no citation of authorities to prove it, that the discovery of a new and abstract principle in science or mechanics, cannot be the subject of a patent. And clearly if this patentee has discovered merely the *principle*, or scientific fact that super-heated water by its own power, will effect the decomposition or separation of fatty substances into acids and solution of glycerine, he could not have obtained a patent—or if a patent issued, it would be void.

But he claims and has described more than this. He claims the discovery of a new principle, and a process by which that principle may be made practical and operative. This *process* is minutely and fully described, and that is all the law requires. It has been adjudged a patentable invention by the officer of the government selected with special reference to his qualification for the position, and by him a patent has been issued, securing to the patentee the exclusive benefit of his invention, for the term prescribed by law. I do not feel called upon to overrule and set aside the judgment of the Commissioner of Patents, in the case now before me.

The next inquiry relates to the question of infringement.

The bill alleges that the defendant "is now constructing and using the said patented improvement in some part thereof, substantially the same in construction and operation, as in said letters patent mentioned.

On the point of infringement, a mass of evidence has been offered on both sides, and it has been discussed at length by counsel. Without reviewing the evidence in its details, I will state as concisely as I can, the conclusions to which I have arrived; and I may remark that as there seems to be no con-

troversy as to the process or appliances by which the defendant decomposes fatty bodies, it is unnecessary here to describe them with minuteness.

The sole inquiry is, whether the mode or process used by the defendant, is substantially identical in whole or in part, with that patented to, and used by the plaintiff.

The invention of the plaintiff has been already sufficiently noticed.

As to the defendant's invention, it appears, that in May, 1858, he applied for a patent, and filed his specifications describing his invention, and the process by which it was to be made practical. He there claimed as his invention "the manufacture of fat acids by subjecting fatty or oleaginous bodies to the direct action of super-heated steam, either with or without the use of other agents."

This application was rejected for the reason stated by the Commissioner, that the invention claimed by the defendant was covered by the previous patent granted to the plaintiff.

The defendant filed a new application, in which he modified his original claim and describes his invention as consisting "in the combination and arrangement of the apparatus as herein set forth, for the *saponification* of fatty bodies." And this he proposes to effect by the direct application of superheated steam, to the mass of oil or other fatty substances, and thus producing fat acids without distillationor the direct application of fire. In his conclusion he claims as new, "the combination of boiler, superheating furnace and tank." In the description of his process, he says:—"The superheated steam alone of a temper-"ature of from 800° to 900° *Far.* will effect the decomposition, "but acids and alkalies may be used in combination with the "superheated steam to render so high a temperature unneces-"sary." He then states that at a temperature of from 400° to 530° *Far.* the use of seven pounds of lime and fifty pounds of water to every one hundred pounds of fatty matter will be sufficient for the superheated steam. Thus modified, a patent was granted to the defendant, the 5th of October, 1858.

In his answer, the defendant calls his invention "a combination of machinery, or improvement in apparatus for manufacturing fatty acids, etc., by superheated steam, and a tight tank by

which the fatty acids are produced without distillation, or the direct action of fire." He also states that the fatty substances are placed in the tank, closed at the top to retain the heat and steam, with six or seven pounds of lime, and one hundred and thirty pounds of water to every one hundred pounds of the fatty matter, and introduces steam heated to 340° or 350° *Far.* which, in connection with the action of the lime and water produces a lime soap, and sets the glycerine free in five hours after the operation is begun. The lime soap is afterwards decomposed by the use of sulphuric acid, and the fat acids become free.

This synopsis of the defendant's invention as described and used by him, sufficiently exhibits its essential features. And the question for decision is, whether in any of its processes, or modes of operation, it infringes any right granted to the plaintiff by his patent.

It has been before stated, that the claim of the plaintiff is in substance, that by his process, superheated water under pressure, is the sole agent in the decomposition of fatty substances, and separating them so as to form free fat acids, and solution of glycerine.

Does the defendant's process effect, or is it capable of effecting, the same result by substantially similar means?

In giving an answer to this question, it is unnecessary to institute a critical comparison of the machinery and appliances respe ctively used by the patentees. It is not controverted that they are essentially alike. The defendant produces the heat necessary to decompose the fatty mass in his tank, by the use mainly of steam heated to a high temperature, which necessarily causes the water forming a part of the contents of the tank, to rise to the same temperature as the steam, thus avoiding the direct application of fire to the tank, according to the process he describes; and by his distinct admission in his answer, a portion of water is used as a decomposing agent. It is also proved by the witnesses, that, in the defendant's process, water is required and used. And it is clear that, in that process, it is the superheated water, necessarily under pressure, which effects, to a certain extent, the decomposition of the fatty contents of the tank.

The scientific gentlemen examined as witnesses for the plaintiff, unite in saying, after full experiments, that in their judgment

this result is due to the chemical action of the super-heated water, on the precise principal of the plaintiff's invention.

It is true that two experts, called as witnesses for the defendant, state it as their belief, not based, however, on experiment, that the decomposition cannot take place at a temperature of water less than 550° or 600°. And hence it is urged by the counsel for the defendant, that there is no identity in the two processes.

In support of this view, it is insisted, that in the defendant's process the water is heated only to 350° or 400°, and at that temperature can have no decomposing power, and therefore, that the processes are essentially different in principle.

The fact relied upon to sustain this position, is not made out by the evidence. The opinions of the two chemical experts referred to, cannot prevail against the positive statements of no less than five witnesses, that by experiment it is found, that at a temperature of 350° the heated water under pressure, as applied by the defendant, will produce free fat acid by its chemical action alone.

As I understand the law, the plaintiff's patent covers all the modes and processes by which the principle of his invention is made operative in practice. In Curtis on Patents, § 233, the author says: "These cases show that when a party has invented "some mode of carrying into effect a law of natural science, or "a rule of practice, it is the application of that law or rule, "which constitutes the peculiar feature of his invention; that he "is entitled to protect himself from all other modes of making "the same application; and consequently, that every question of "infringement will present the question whether the different "mode, be it better or worse, is in substance an application of "the same principle. The substantial identity, therefore, that is "to be looked to in cases of this kind, respects that which con-"stitutes the essence of the invention, viz., the application of the "principle."

On this point the authorities are numerous; but it seems, to the Court, unnecessary to make a special reference to them. It is clear the plaintiff, in this case, does not, in his specification, restrict himself to any certain or fixed temperature of heated water, as necessary to produce the required result. He names the melting-point of lead 612°, because, as he says, it is known

to operate successfully; but he does not say, or intimate, that a higher or lower temperature may not be expedient or useful. He does indeed state, what would be entirely obvious without it, that the rapidity of the process of decomposition, by the chemical action of the heated water, will be in proportion to the degree of its heat. He has, therefore, in effect, provided for a much higher temperature than 612°, by recommending the use of a tank strong enough to resist a pressure of ten thousand pounds to the inch.

There is but one other point connected with the question of infringement, to which it seems necessary to advert. I refer to the position assumed by the counsel for the defendant, which, as I understand it, is, that if the defendant has adopted the principle of the plaintiff's invention in part only, and uses an agency in his process, not a part of the plaintiff's invention, he does not infringe his right under his patent.

It is contended, and the evidence proves it, that the defendant uses two distinct agents in his process. He has the super-heated water, and, in addition, uses six or seven pounds of lime to each one hundred pounds of the fatty mass in the tank.

The result of this, as appears satisfactory from the evidence, is, that a part of this mass is converted into free fat acid, and a part is saponified or converted into what some of the experts designate as an acid lime soap.

There seems to be no question that the production of the free fat acid is due solely to the decomposing power of the heated water, and the saponifying effect to the alkaline properties of the lime acting on the mass of fat.

As to the first of these effects, the production of free fat acid, the precise principle which constitutes the distinguishing feature of the plaintiff's invention, is clearly brought into requisition in the process.

As to the other, the saponifying action of the lime, there is no invasion of the plaintiff's claim, for the obvious reason that he does not name or provide for the use of lime, in the process described in his specification.

Upon this state of facts, the question is, has the defendant so far appropriated the invention of the plaintiff as to render him liable for an infringement? The answer to this inquiry seems so obvious, that I shall not discuss it at any length.

The principle is undoubted, that in a patent for a mechanical structure, the novelty and utility of which consists wholly in a combination of things before known and in use, there is no infringement by the use of any of the separate parts of the combination.

But this principle can have no application to the present case. The gist of the plaintiff's invention is the discovery of a principle in science, which he claims to have made practically useful by the process he describes. Now it seems plain that he who adopts that principle, to an available or practical extent, so far invades the exclusive right of the patentee. The logical sequence of the opposite doctrine would be, that there could be no infringement unless the patented invention was adopted to the extent of producing the full results proposed by the patentee. In the case of this defendant, his discovery, which constitutes a distinct part of his claim, that a small percentage of lime will facilitate and hasten the decomposition of the fatty mass in the tank, may be and probably is useful and meritorious, and would well entitle him to a patent; but certainly it gave him no right to adopt the plaintiff's invention in giving effect to his own. His claim for a patent should have rested on the fact, that he had discovered an improvement of the principle and process covered by the prior patent to the plaintiff. To the extent, therefore, that he has without the license, or authority of the plaintiff, adopted and used his process, the defendant is chargeable with an infringement.

It is perhaps to be regretted that the defendant in applying for a patent, had not limited his claim to an improvement of the plaintiff's invention. In that form his patent would have been sustainable, and would have been beneficial, not only to the defendant, but the public. It is in evidence that under the old process of separating fatty matter for manufacturing purposes, fourteen pounds of lime was required to every one hundred pounds of the mass, which produced lime soap; and the separation of this soap into free fat acid and glycerine, required the use of 35 per cent. of sulphuric acid. This was an expensive process; and the discovery that, through the joint agency of super-heated water, and 6 or 7 per centage of lime, the desired result could be speedily and successfully effected, was an economical view, an important invention, and apparently of practical utility.

I cannot hesitate upon the law of this case, applicable to the facts proved, in holding, first, that the plaintiff's patent is valid to the extent of his claim—and secondly, that the defendant

has infringed upon the plaintiff's patented rights, to the extent indicated. In the present posture of the case, it is obvious no decree can be entered for damages arising from the infringement. The rule of compensation sanctioned by the express provision of the statute, is the actual damage sustained by the plaintiff; and this damage is measured by the profit which the defendant has derived from the adoption and use of the plaintiff's invention. But in this case, this adoption and use have only been to a partial extent; and there are no data before the Court by which the profit to the defendant can be ascertained. The amount of the recovery in the case cannot be great—and it may be, the plaintiff does not desire a decree for damages. While it is clear from the evidence that it is practicable by the plaintiff's process alone to effect the decomposition of a fatty mass as claimed by his patent; yet it is perhaps questionable whether it can be successfully adopted by the manufacturer. The evidence shows that about twenty hours are required to effect the desired result by this process; and some of the witnesses are positive, that in this country at least, the length of time required to perfect the process is a fatal objection to its practical use. It appears that those who have tried it, have found it necessary to expedite the process of decomposition by the use of from one-half to two per cent. of lime; and with this addition the trials have been very successful. But the plaintiff under the conviction that the use of super-heated water, under pressure, would of itself, perfectly effect the desired end, has made no claim for the use of lime in his process, and cannot complain of its use as an invasion of his rights.

If the plaintiff desires it, the case will be referred to a master to inquire into, and report, the actual profit which the defendant has derived from the adoption and use of the plaintiff's process, to the extent it has been adopted and used by the defendant.

A decree may be entered in accordance with the views stated by the Court.

UNITED STATES OF AMERICA, *Southern District of Ohio.* } *ss.*

I, John McLean, Clerk of the Circuit Court of the United States for said District, certify that the above is a [SEAL.] true copy of the original taken in this office. In testimony whereof, I have hereunto set my hand and affixed the seal of said Court this 22d February, A. D. 1862, and in the eighty-sixth year of the independence of the United States of America.

JOHN McLEAN, *Clerk.*

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IN THE

CIRCUIT COURT OF THE UNITED STATES,

IN AND FOR THE

SOUTHERN DISTRICT OF NEW YORK.

IN EQUITY.

RICHARD A. TILGHMAN,

vs.

ROLAND G. MITCHELL.

OPINION OF COURT.

INQUIRER PRINTING OFFICE.

CIRCUIT COURT OF THE UNITED STATES.

SOUTHERN DISTRICT OF NEW YORK.

RICHARD A. TILGHMAN.
vs.
ROLAND G. MITCHELL.

Nov. 28*th*, 1864.
BILL IN EQUITY
PATENT CASE.

This was a suit in Chancery heard at final hearing upon bill, answer, and proofs. It was argued in July, 1864, before Mr. Justice Nelson by George Harding and E. W. Stoughton, Esq., for Complainant, and by G. C. Goddard and Charles M. Keller, for the Defendant.—The opinion of the Court was delivered on the 28th of November, 1864, as follows:

OPINION OF COURT.

NELSON, C. J.

The bill is filed, in this case, to restrain the Defendant from infringing a patent granted to the Complainant for *a new and useful improvement in processes for purifying fatty bodies*, bearing date October 3d, 1854, securing the exclusive right to the invention for fourteen years from the 9th of January preceding.

The patentee declares that his invention consists of a process for producing free fat acids and solution of glycerine from fatty and oily bodies of animal and vegetable origin, which contain glycerine as their base; for this purpose, he subjects the fatty or oily bodies to the action of water at a high temperature, and pressure, so as to cause the elements of these bodies to combine with water, and thereby obtain, at the same time, free fat acids and glycerine. He

mixes the fatty body to be operated upon with from a third to a half of its bulk of water, and the mixture is to be placed in any convenient vessel in which it can be heated to the melting point of lead, until the operation is complete. The vessel must be closed, and of great strength, so that the requisite amount of pressure may be applied to prevent the conversion of the water into steam.

The patentee then states, that the process may be performed more rapidly, and also continuously by causing the mixture of fatty matter and water to pass through a tube or continuous channel, heated to the temperature already mentioned, the requisite pressure for preventing the conversion of water into steam being applied during the process.

He then gives a particular description, and drawing of this mode of carrying into effect his process, but claims no part of it as his invention.

The patentee states, that the melting point of lead has been mentioned as the proper heat to be used in the operation of his process, as it has been found to give good results. But the change of fatty matter into fat acid and glycerine takes place with some materials (mentioning some of them) at a lower rate of heat, that the decomposing action of the water becomes more powerful as the heat is increased.

He adds, that by starting the appartus at a low heat, and gradually increasing it, the temperature giving products most suitable to the intended application of the fatty body employed, can easily be determined.

The fatty acids, he observes, thus produced, may, like those obtained by other methods, be used in the manufacture of candles, and soaps, and be applied to various purposes according to their quality. Some fatty bodies, particularly when impure, generate during the process, a portion of acetic or other soluble acid; in such cases, he says, that he adds a corresponding quantity of alkaline, or basic matter to the water and oil, before they are pumped into the tubes.

The patentee then sets forth his claim, which is—"Having now described the nature of my said invention, and the manner of performing the same, I hereby declare that I claim as my invention, the manufacturing of fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure."

It will be seen, not only from the specification, but also, from the

claim, that the improvement patented to the complainant, is the invention of a process for producing fat acids, and glycerine from fatty or oily bodies—which process consists in the action of water upon these bodies at a high temperature and pressure, and which may be effected in any vessel adapted to such use.

There is no claim for the vessel or machinery thus used; but, as it was essential to the validity of the process, as an invention, to show how it may be adopted to practical use, two modes are pointed out—One, any convenient vessel well known to the art, and which some of the witnesses called a digester, the other, the Coil Apparatus In either of which, as appears from the proofs, the process could be carried into practical effect, according to our construction of the patent.

It was urged on the argument by the learned council for the defendant, that, upon the terms of the specification, the vessel must be entirely filled with mixture of the water and fatty matter, and then be closed, and, the contents heated to the point of melting lead, and, no steam be permitted to be made in the vessel; and, that, upon this hypothesis, no vessel could be made of sufficient strength to endure the pressure; but, we do not agree to this construction. In the first place the degree of heat was given only as the maximum, and under which the process could be most rapidly carried into effect. For the patentee, speaking upon this part of the specification, says, that no fixed degree of heat can be given, as the different fatty or oily substances that may be used, will require different degrees; and that by starting the vessel at low heat and gradually increasing it, the best temperature may be ascertained for the particular substance used.

In the next place, we cannot agree that a fair construction of the specification tends to the conclusion, either that the vessel was to be entirely filled, or that no steam was to be permitted in it; no doubt, it is true as urged for the defendant, if thus filled, and the vessel closed, and the contents heated to the point of melting lead, or under a pressure that would prevent the existence of steam, the process would be utterly impracticable; and, doubtless, the patentee knew this would be the result, as well as any of the experts.

It would require but the commonest knowledge and experience in the business of life to reach such a conclusion.

This moderate degree of knowledge, at least, should be kept in view in construing the general terms of the description.

Besides, the patentee does not direct that the vessel should be entirely filled. This is an inference of the learned Counsel, from the direction that the vessel must be closed and be of great strength, so that the requisite amount of pressure be applied to prevent the conversion of the water into steam.

Now, all that was intended, as is apparent from the context, by the patentee was, that the pressure should be so great as to prevent the body of the water in the vessel from passing into steam, as the heated water was the element that separated the fatty acids and glycerine. That there would necessarily be some steam, must have been obvious to the patentee, as well as to any one of common observation.

Now, upon this interpretation of the patent, and which we think is the sound one, we repeat what we have already said, that the process could and has been carried into successful operation by the means pointed out by the patentee

Previous to the date of this invention, there were but two modes known or in practical use for decomposing fatty substances, and obtaining from them fatty acids and glycerine, one called the lime saponification process, the other known as the distillation process. It is not material to give a particular description of these modes of separating the fatty acids and glycerine; it is sufficient to say that they were different from the patentee's in the process or mode of producing the result, much more expensive and tedious, and have generally gone out of use, both in this country and in England, since the Complainant's improvement has become generally known and practised.

We have looked through the proofs in the case with some care, and, without going into them in this opinion, are satisfied that the complainant was the first person that discovered the chemical fact, that fatty or oily substances could be decomposed, and the fatty acids and glycerine separated by the action of water at a high temperature, and under pressure.

Then, as to the infringement, it is not material to enquire whether the vessel or machinery used by the defendant is, or is not similar to that described in the complainant's patent.

These constitute no part of his invention. If the defendant, or the persons under whom he uses his machinery, have discovered new means of carrying into effect the complainant's process, he or they may be entitled to a patent for that improvement. But this would furnish no right to the use of the process.

The question here is, does the defendant, whatever may be his vessel or machinery, manufacture or produce fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure, according to the process as explained by the plaintiff in his specification? We are satisfied that he does, and hence has infringed his patent.

Our conclusion is, that the Complainant is entitled to a decree for an injunction, and profits.

A Copy,

KENNETH G. WHITE,

Clerk.

3

Circuit Court of the U. S.

SOUTHERN DISTRICT OF NEW YORK.

RICHARD A. TILGHMAN,
vs.
ROLAND G. MITCHELL.
} In Equity.

UPON EXCEPTIONS TO THE MASTER'S REPORT.

OPINION OF JUDGE BLATCHFORD.

CIRCUIT COURT OF THE UNITED STATES,

For the Southern District of New York.

RICHARD A. TILGHMAN
vs.
ROLAND G. MITCHELL.

IN EQUITY.
No. 1.

On Exceptions to the Master's Report.

The opinion of the Court was delivered, August 26th, 1871.

BLATCHFORD, J.—This case comes up on exceptions taken by the plaintiff to the report of the Master, filed February 7th, 1870. On the 1st of December, 1864, an interlocutory decree was made in the cause, on final hearing, by which it was referred to the Master to state and report to the Court an account of the gains and profits which the defendant had received, or which had arisen or accrued to him, from infringing the exclusive right, of the plaintiff, by the manufacture, use and sale of the improvements patented in the letters patent upon which the suit was brought. The bill was filed in 1862. It was founded on letters patent granted to the plaintiff, October 3d, 1854, for an "improvement in processes for

purifying fatty bodies." The term of the patent was for fourteen years from the 9th of January, 1854.

In his specification, the patentee says: "My invention consists of a process for producing free fat acids and solution of glycerine from those fatty and oily bodies of animal and vegetable origin, which contain glycerine as their base. For this purpose, I subject these fatty or oily bodies to the action of water, at a high temperature and pressure, so as to cause the elements of those bodies to combine with water, and thereby obtain at the same time free fat acids and solution of glycerine. I mix the fatty body to be operated upon with from a third to a half of its bulk of water, and the mixture may be placed in any convenient vessel in which it can be heated to the melting point of lead, until the operation is complete. The vessel must be closed and of great strength, so that the requisite amount of pressure may be applied, to prevent the conversion of the water into steam. The process may be performed more rapidly, and also continuously, by causing the mixture of fatty matter and water to pass through a tube or continuous channel, heated to the temperature already mentioned, the requisite pressure for preventing the conversion of water into steam being applied during the process; and this, I believe, is the best mode of carrying my invention into effect. In the drawing hereunto annexed, are shown figures of an apparatus for performing this process speedily and continuously, but which apparatus I do not intend to claim as any part of my invention." He then describes the construction of the apparatus shown by the figures in the drawing. The fat or oil, in a fluid state, is placed in a vessel with from one-third to one-half its bulk of

warm water, a disc or piston in the vessel, perforated with numerous small holes, being kept in rapid motion, up and down, in the vessel, to cause the fat or oil and water to form an emulsion or intimate mechanical mixture. A force pump, like those in common use for hydraulic presses, then drives the mixture through a long coil of very strong iron tube, which, being placed in a furnace, is heated by a fire to about the temperature of melting lead. From the exit end of the heating tubes, the mixture, which has then become converted into free fat acids and solution of glycerine, passes on through another coiled iron tube, immersed in water, by which it is cooled down from its high temperature to below 212° Fahrenheit, after which it makes its escape through an exit valve into a receiving vessel The specification says: "The iron tubes I have employed and found to be convenient for this purpose, are about one inch external diameter, and about half an inch internal diameter, being such as are in common use for Perkins' hot water apparatus. The ends of the tubes are joined together by welding, to make the requisite length, but, where welding is not practicable, I employ the kind of joints used for Perkins' hot water apparatus, which are now well known." The heating tube is coiled several times backwards and forwards, so as to arrange a considerable length of tube in a small space. The different coils of the tube are kept about a quarter of an inch apart from each other, and the interval between them is filled up solid with cast-iron, which also covers the outer coils or rows of tubes, to the thickness of one-half or three-quarters of an inch. This casing of metal insures a considerable uniformity of tem-

perature in the different parts of the coil, adding also to its strength, and protecting it from injury by the fire. The exit valve is so loaded, that, when the heating tubes are at the desired working temperature, and the force pump is not in action, such valve will not be opened by the internal pressure produced by the application of heat to the mixture; and, therefore, when the force pump is not in action, nothing escapes from the exit valve, if the temperature be not too high. But, when the pump forces fresh mixture into one end of the heating tubes, the exit valve is thereby forced open, to allow an equal amount of the mixture, which has been operated upon, to escape out of the cooling tubes at the other end of the apparatus. The specification adds: "No steam or air should be allowed to accumulate in the tubes, which should be kept entirely full of the mixture. For this purpose, whenever it may be required, the speed of the pump should be increased, so that the current through the tubes may be made sufficiently rapid to carry out with it any air remaining in them. Although the decomposition of the neutral fat by water takes place with great quickness at the proper heat, yet I prefer that the pump should be worked at such a rate, in proportion to the length or capacity of the heating tubes, that the mixture, while flowing through them, should be maintained at the desired temperature for ten minutes, before it passes into the refrigerator or cooling parts of the apparatus. The melting point of lead has been mentioned as the proper heat to be used in this operation, because it has been found to give good results. But the change of fatty matters into fat acids and glycerine takes place with

some materials (such as palm oil) at or below the melting point of bismuth. Yet the heat has been carried considerably above the melting point of lead without any apparent injury, and the decomposing action of the water becomes more powerful as the heat is increased. By starting the apparatus at a low heat and gradually increasing it, the temperature giving products most suitable to the intended application of the fatty body employed, can easily be determined. To indicate the temperature of the tubes "(the heating tubes)" I have found the successive melting of metals and other substances of different and known degrees of fusibility to be convenient in practice. Several holes, half an inch in diameter and two or three inches deep, are bored into the solid parts of the castings surrounding the tubes, each hole being charged with a different substance. The series I have used consists of tin, melting at about 440° F.; bismuth, at about 510° F.; lead, at about 610° F.; and nitrate of potash, at about 660° F. A straight piece of iron wire, passing through the side of the furnace to the bottom of each of the holes, enables the workman to feel which of the substances are melted, and to regulate the fire accordingly. It is important for the quickness and perfection of the decomposition, that the oil and water, during their entire passage through the heating tubes, should remain in the same state of intimate mixture in which they enter them. I, therefore, prefer to place the series of heating tubes in a vertical position, so that any partial separation which may take place while the liquids pass up one tube, may be counteracted as they pass down the next. I believe that it will be found

useful to fix, at intervals in the heating tubes, diaphragms, pierced with numerous small holes, so that the liquids, being forced through these obstructions with great velocity, may be thoroughly mixed together. I deem it prudent to test the strength of the apparatus by a pressure of ten thousand pounds to the square inch before taking it into use; but I believe the working pressure necessary in using the heat I have mentioned will not be found to exceed two thousand pounds to the square inch. When it is desired to diminish the contact of the liquids with iron, the tubes or channels of the apparatus may be lined with copper. The hot mixture of fat acids and glycerine which escapes from the exit valve of the apparatus separates by subsidence. The fat acids may then be washed with water, and the solution of glycerine concentrated and purified by the usual means. The fat acids thus produced may, like those obtained by other methods, be used in the manufacture of candles and soaps, and be applied to various purposes, according to their quality; and, when desired, they may also be first bleached by chemical agents, or purified by distillation, in a current of steam, or in a vacuum, as is now well understood. I prefer that the fatty bodies should be previously deprived, as far as practicable, of such impurities as would cause the discoloration of the fat acids produced, but, when the fat acids are to be finally purified by distillation, this preliminary purification is of less importance. When sulphuric acid, nitrous fumes, or other corrosive agent, shall have been used for purifying, hardening or otherwise preparing the fatty body to be operated upon, I take care that all traces of it shall be washed out or

neutralized, before passing it through the apparatus. Some fatty bodies (particularly when impure) generate, during the process, a portion of acetic or other soluble acid, which might tend to injure the iron tubes. In such cases, I add a corresponding quantity of alkaline or basic matter to the water and oil before they are pumped into the tubes." The claim is in these words: "Having now described the nature of my said invention, and the manner of performing the same, I hereby declare, that I claim as of my invention, the manufacturing of fat acids and glycerine from fatty bodies, by the action of water at a high temperature and pressure." The case was brought to a hearing before Mr. Justice Nelson, who, in November, 1864, delivered a written opinion, in which he said: "It will be seen, not only from the specification, but also from the claim, that the improvement patented to the complainant is the invention of a process for producing fat acids and glycerine from fatty or oily bodies, which process consists in the action of water upon these bodies at a high temperature and pressure, and which may be effected in any vessel adapted to such use. There is no claim for the vessel or machinery thus used; but, as it was essential to the validity of the process, as an invention, to show how it may be adapted to practical use, two modes are pointed out—one, any convenient vessel well known to the art, and which some of the witnesses called a digester; the other, the coil apparatus; in either of which, as appears from the proofs, the process could be carried into practical effect, according to our construction of the patent. It was urged, on the argument, by the learned counsel

for the defendant, that, upon the terms of the specification, the vessel must be entirely filled with the mixture of water and fatty matter, and then be closed, and the contents heated to the point of melting lead, and no steam be permitted to be made in the vessel; and that, upon this hypothesis, no vessel could be made of sufficient strength to endure the pressure. But we do not agree to this construction. In the first place, the degree of heat was given only as the maximum, and under which the process could be most rapidly carried into effect. For, the patentee, speaking upon this part of the specification, says, that no fixed degree of heat can be given, as the different fatty or oily substances that may be used will require different degrees; and that, by starting the vessel at a low heat and gradually increasing it, the best temperature may be ascertained for the particular substance used. In the next place, we cannot agree that a fair construction of the specification tends to the conclusion, either that the vessel was to be entirely filled, or that no steam was to be permitted in it. No doubt, it is true, as urged for the defendant, if thus filled, and the vessel closed, and the contents heated to the point of melting lead, or under a pressure that would prevent the existence of steam, the process would be utterly impracticable; and, doubtless, the patentee knew this would be the result, as well as any of the experts. It would require but the commonest knowledge and experience in the business of life to reach such a conclusion. This moderate degree of knowledge, at least, should be kept in view, in construing the general terms of the description. Besides, the patentee does not direct that the vessel should be en-

tirely filled. This is an inference of the learned counsel, from the direction that the vessel must be closed and be of great strength, so that the requisite amount of pressure be applied to prevent the conversion of the water into steam. Now, all that was intended, as is apparent from the context, by the patentee, was, that the pressure should be so great as to prevent the body of the water in the vessel from passing into steam, as the heated water was the element that separated the fatty acids and glycerine. That there would necessarily be some steam, must have been obvious to the patentee, as well as to any one of common observation. Now, upon this interpretation of the patent, and which, we think, is the sound one, we repeat what we have already said, that the process could and has been carried into successful operation by the means pointed out by the patentee. Previous to the date of this invention, there were but two modes known or in practical use for decomposing fatty substances, and obtaining from them fatty acids and glycerine—one called the lime saponification process; the other known as the distillation process. It is not material to give a particular description of these modes of separating the fatty acids and glycerine. It is sufficient to say that they were different from the patentee's in the process or mode of producing the result, much more expensive and tedious, and have generally gone out of use, both in this country and in England, since the complainant's improvement has become generally known and practised. We have looked through the proofs in the case with some care, and, without going into them, in this opinion, are satisfied that the complainant was the first person that discovered the chemi-

cal fact, that fatty or oily substances could be decomposed, and the fatty acids and glycerine separated, by the action of water at a high temperature and under pressure. Then, as to the infringement, it is not material to enquire whether the vessel or machinery used by the defendant is or is not similar to that described in the complainant's patent. These constitute no part of his invention. If the defendant, or the persons under whom he uses his machinery, have discovered new means of carrying into effect the complainant's process, he or they may be entitled to a patent for that improvement. But this would furnish no right to the use of the process. The question here is—does the defendant, whatever may be his vessel or machinery, manufacture or produce fat acids and glycerine, from fatty bodies, by the action of water at a high temperature and pressure, according to the process as explained by the plaintiff in his specification? We are satisfied that he does, and hence has infringed the patent. Our conclusion is, that the complainant is entitled to a decree for an injunction and profits."

Voluminous testimony was taken before the Master, on the reference made to him by the interlocutory decree, and his report is, "that no gains or profits have been proven to have been received by, or to have arisen or accrued to the defendant, from the manufacture, use or sale of the improvements patented in the letters patent set forth and described in the order of reference." The plaintiff excepts to the report of the Master, and alleges, in his exceptions, that the Master erred in not reporting the following facts as proved:

"1. That defendant has made a profit by the saving of the quantity of lime and sulphuric acid formerly used by him in his old process, to produce the fat acids and glycerine which he now produces (without using lime or sulphuric acid) by the action of water at a high temperature and pressure.

2. That the quantity of lime and sulphuric acid thus saved by defendant, is thirteen and a half pounds of lime, and twenty-seven pounds of sulphuric acid, on each one hundred pounds of fat decomposed into fat acids and glycerine, by the action of water at a high temperature and pressure.

3. That defendant has made a profit by the saving of the quantity of fat formerly lost and thrown away with the refuse sulphate of lime produced in his old process, but which fat is no longer lost since his use of complainant's process, in which no refuse sulphate of lime is produced or thrown away.

4. That the quantity of fat thus saved by defendant, is two pounds on each one hundred pounds of fat decomposed into fat acids and glycerine by the action of water at a high temperature and pressure.

5. That the quantity of fat decomposed by defendant into fat acids and glycerine, by the action of water at a high temperature and pressure, up to the 9th day of January, 1868, amounted to eleven million five hundred and two thousand, eight hundred and ninety-two pounds, (11,502,892 lbs).

6. That the saving of thirteen and a half pounds of lime, twenty-seven pounds of sulphuric acid, and two

pounds of fat, upon each one hundred pounds of fat decomposed, was made and realized by defendant upon the said eleven and a half million pounds of fat decomposed into fat acids and glycerine.

7. That the values or market prices of the lime, sulphuric acid and fat, at the several dates when saved by defendant, are those stated by him in his testimony herein.

8. That defendant has made a profit by the increased strength, purity and value of the glycerine obtained by his use of complainant's process, as compared with that obtained by his former process.

9. That this increase of value of the glycerine amounts to one-fifth of a cent on each pound of fat from which the glycerine was utilized and obtained, by the action of water at a high temperature and pressure.

10. That the quantity of fat from which the glycerine was utilized and obtained by defendant, by the action of water at a high temperature and pressure, amounted to ten million, three hundred and thirty-seven thousand, one hundred and forty-seven pounds, (10,337,147 lbs).

11. That the profits made by defendant by his use of complainant's process, amounted to the principal sum of one hundred and sixty thousand, six hundred and ninety-nine $\frac{05}{100}$ dollars, ($160,699 05), being the value of the following articles saved, at their market price when saved, viz:

Lime saved,	1,552,889 lbs.	Value,	$11,243 26
Sulphuric Acid saved,	3,105,778 "	"	100,663 51
Fat saved,	230,057 "	"	28,118 01
Profit on Glycerine obtained from 10,337,147 lbs. of fat, $\frac{1}{5}$ cent per lb. fat, ...			20,674 27
			$160,699 05

together with interest on said sums from the dates when the saving was realized, as set forth in the calculation appended to the printed argument submitted by the counsel for complainant."

The plaintiff contends, that the defendant, by manufacturing fat acids and glycerine from fatty bodies, by the action of water at a high temperature and pressure, according to the plaintiff's process, has saved the quantities specified, of lime, sulphuric acid and fat, in working the specified quantities of fat, aud has made the specified additional profit from the specified quantity of glycerine; that such saving and profit are due to the use of the plaintiff's process; and that the defendant must account for the same, as profits, under the interlocutory decree. The defendant contends, that he has made no gains or profits by the use of the plaintiff's invention; that such invention is incapable of practical use; and, that whatever saving the defendant has made by working the process which he uses, is due to something other than any invention of the plaintiff's.

The defendant formerly used, in his manufactory, what was known as the lime saponification process. Twenty-five pounds of water and one hundred pounds of fat were put into a vat. From nine to fourteen pounds of lime were slacked in another vat with sixty-six pounds of

water, and the product was then gradually poured into the fat and water, which were boiling, and the whole was kept boiling for about eight hours. It was then allowed to stand and cool, and the water was drawn off, carrying in it the glycerine. The residue, called lime soap, was then decomposed by sulphuric acid, and produced free fat acids. The defendant, since abandoning this old process, has worked under and according to letters patent of the United States, granted to Robert Alfred Wright and Louis Jules Fouché, January 25th, 1859, for "improvements in process for decomposing fats." All the fat he has treated has been treated according to the process and by the apparatus described in that patent. The specification of that patent states, that the apparatus which it describes is chiefly intended for the decomposition of fatty substances into fatty acids and glycerine. A detailed description of the apparatus and of its action is given. There are two boilers. The lower boiler or first boiler, is completely filled with water. The upper boiler or second boiler is filled with water up to one-third of its height, and then filled up to a certain point with the fatty bodies to be decomposed. The first boiler, which is strong enough to resist a pressure of from ten to twenty atmospheres, is gradually heated till the proper pressure, according to the nature of the fatty matter, is attained. The superheated water in the first boiler ascends through a tube which runs from the top of the first boiler into the upper part of the second boiler and there terminates in a rose jet, discharging downwards. The water, passing through the holes in the rose jet, descends through the fatty matter, and passes out of the bottom of the second boiler, through

a tube, which enters the top of the first boiler, and passes through its interior to near its bottom, and there discharges into it. The mixture of fatty matter and water, carried down by the passage from the second boiler to the first boiler, is again heated, to recommence its ascending motion, and so on. A continuance of this operation during a period of from five to eight hours, according to the nature of the fatty bodies operated on, and according to the variation of pressure, varying from ten to twenty atmospheres, decomposes the fatty bodies into glycerine and fatty acids, the glycerine remaining dissolved in the water and the fatty acids floating in the second boiler. The patentees say, in their specification: "We are aware that, firstly, the decomposition of fatty bodies by water, under the influence of heat and of pressure, is a well known scientific fact. Water is substituted for the organic basis; it forms a perfect and fixed combination with the fatty acids, while the glycerine is dissolved in the excess of water. Secondly, that, as this chemical action takes place under the influence of a weak affinity, it is necessary, in addition to the above named physical and chemical conditions, to insure a perfect molecular agitation of the whole mass, and that we wish it to be understood, that what we wish to claim and establish as of our invention, consists of an apparatus wherein the water and the fatty matters are heated separately in two different boilers. The first boiler is heated by the source of heat, while the second boiler is heated by the first boiler. In these boilers, the agitation necessary for the chemical action and combination is produced by the pressure of the heated water in the first boiler. This water

circulates continuously from the first boiler to the second boiler, and from the second boiler to the first, in a continuous and self acting or automatic manner, without interruption. The characteristics of our apparatus are, that it produces agitation by circulation alone, a continuous and automatic circulation, produced by the pressure of water. Lastly, our apparatus effects its chemical action in a continuous manner, without the aid of any manual or other assistance." The claim of the Wright and Fouché patent is as follows: "Having described the nature of our invention, and the manner in which the same is to be performed, we do not claim the application of superheated water for decomposing fatty bodies, nor the form of the apparatus above described, which may vary somewhat according to conditions and circumstances; but what we claim as our invention is—producing a continuous automatic circulation of highly heated water, in a very finely divided state, through the bodies under treatment, by means of an apparatus constructed and employed substantially as herein shown and described."

It is manifest, that, in using the Wright and Fouché apparatus, the defendant decomposes fatty bodies into fat acids and glycerine by the action of water at a high temperature and pressure, and thus uses the plaintiff's process. But, the defendant urges, that he works at a lower temperature than that designated by the plaintiff, and takes more time for the operation, and employs a continued agitation or circulation of the fat, water and steam; and that those are features not described in the plaintiff's patent, and features to which all the profits made by the defendant are entirely due. Stress is par-

ticularly laid on the fact that, without the use of means to produce agitation and circulation of the fat, water and steam, the employment of heat and pressure would result in no pecuniary profit. The other points urged are disposed of by the opinion of Mr. Justice Nelson.

It is a mistake to contend that the plaintiff does not, in his specification, enforce the necessity of keeping up an intimate mechanical mixture of the fat and water during the operation. He directs that the fat and water shall be mixed, and he calls, in many places, the liquid that is being operated upon, a mixture. His description and drawing of the coil apparatus state and show, that a disc or piston, perforated with numerous small holes, is kept in rapid motion up and down in the vessel into which the fat and water are first put, to cause them "to form an emulsion or intimate mechanical mixture." He also states, in reference to the coil apparatus, that "it is important for the quickness and perfection of the decomposition, that the oil and water, during their entire passage through the heating tubes, should remain in the same state of intimate mixture in which they enter them;" and he suggests two devices for maintaining such thorough mixture. It is impossible to maintain the proposition that the plaintiff's specification ought not to be construed as fully disclosing the desirableness of keeping the fat and water intimately mixed during the operation, with a view to effecting a speedy and complete decomposition, as well when the "convenient vessel" first named is used, as when the coil apparatus is used. The evidence is, that the decomposition will take place without mixture, in a

time proportioned to the degree of heat and the extent of the area of surface contact between the fat and the water. Having indicated the propriety of using means to maintain an intimate mixture of the fat and water, the plaintiff is entitled to use, in carrying out his process, any means then known and used in the same art for maintaining a mixture of fat and water. In the lime saponification process, the stirring or agitation of the fat, water and lime during the process, in order to keep up an intimate contact between the particles, was employed; and the proofs show the description or use, before the date of the plaintiff's patent, of a vertical churn agitator to mix fat, water and lime, while being boiled in an upright boiler under pressure, of a rotary paddle wheel agitator to mix fat, water and lime, while being boiled in a horizontal boiler under pressure, and of a stirrer rotating on a vertical shaft, to mix fat, water and lime, while being boiled in an open tub. The plaintiff's specification is addressed to persons skilled in the department of manufacturing to which it is applicable; and the evidence is abundant to show, that such persons would have understood, as a matter of course, that, with a view to practical and profitable manufacturing, there must be agitation of the mass, and would have readily used known devices at hand to produce such agitation.

The defendant has entirely failed to show that the plaintiff's process, carried out as described in his patent, is not practicable or practical. It was put in practical operation in London in 1857, a patent having been taken out for it in England by the plaintiff, January 9th, 1854. It was put in operation in Cincinnati, Ohio,

in 1860, and has been in use, under license from the plaintiff, in the United States, ever since, there being ten factories in the United States working under such license. The defendant was notified by the plaintiff in September, 1860, not to infringe the patent, and what he has done has been done wilfully and not innocently.

It is abundantly shown, that the saving of lime and sulphuric acid and fat, and the increased profit from the glycerine produced, result from the use of the plaintiff's process, and not from the special apparatus of Wright and Fouché. Such apparatus is one means of producing stirring or agitation and mixture. The plaintiff's process, when carried on with other means of maintaining the mixture, produces, as is shown by the evidence, the same saving of lime and sulphuric acid, which is produced by the defendant in using the Wright and Fouché apparatus; and such apparatus is useless, unless a high heat and pressure be employed. The defendant previously used the lime saponification process, and abandoned it for the plaintiff's process. He must be regarded as having made, directly, by using the plaintiff's process, the saving of lime, sulphuric acid and fat, and the profit in respect of glycerine, which existed between the use of the two processes, and which saving and profit he would not have made if he had continued to use the old process. He has not made the saving by using the Wright and Fouché mixing apparatus. Ropes used the heat and pressure with a paddle wheel mixer, and made the saving of lime and sulphuric acid. Jones used a pump to mix, with heat and pressure, and made the same saving.

The use of superheated water is the effective decomposing agent in the defendant's process. If the use by the defendant of the Wright and Fouché mixing apparatus saves labor or fuel, as compared with any prior process, the plaintiff is not entitled to the saving thus effected. But, the defendant has not shown any such saving of labor or fuel. The proof as to the saving of lime, sulphuric acid and fat, and as to the increased profit on the glycerine produced, at the quantities and values set forth in the plaintiff's exceptions, is full and clear.

On the hearing, the defendant's counsel did not dispute, that, if the saving of the lime, sulphuric acid and fat was due to the use of the plaintiff's process, the plaintiff was entitled to the value of such saving, as profits. That is undoubtedly a correct principle, as applicable to an accounting for profits, in a case of this description, in equity.

The plaintiff's exceptions, above set forth, must be allowed. But, as the calculations based on the evidence taken before the Master, and furnished by the plaintiff, show just how much the plaintiff is entitled to recover, it is unnecessary to send the case back to the Master. The account was taken down to the expiration of the patent, on the 9th of January, 1868. The savings are calculated at 13½ pounds of lime, 27 pounds of sulphuric acid and 2 pounds of fat, on each 100 pounds of fat worked. This, at the prices shown by the evidence, makes the saving in the aggregate, of lime, sulphuric acid and fat, $140,024,78. The increased profit on glycerine, at one-fifth of a cent per pound on the quantity of fat worked, was $20,674,27. The saving of lime,

sulphuric acid and fat is calculated from and including the 1st of July in each year, to and including the 30th of June in the following year, covering the period from and including December, 1860, to and including January 9th, 1868. The increased profit on the glycerine is calculated from and including the 1st of January in each year, to and including the 31st of December in the same year, but only covers the fat worked from and including July 1st, 1861, to and including January 9th, 1868. I think that the plaintiff is entitled to interest from and after the close of each of such years, on the ascertained value of the savings and profits for the twelve months next preceding. Making up the account on these principles, gives the following results:

SAVINGS OF LIME, SULPHURIC ACID AND FAT.

For the year ending	Quantity of Fat Worked.	Value of lime, Sulphuric Acid and Fat saved.	Interest to September 1st, 1871.		
			Years.	Per Cent.	
June 30th, 1861..	1,165,745 lbs.	$ 8,996 86	10 1/6	71 1/6	$6,402 77
" " 1862..	1,502,316 "	11,063 28	9 1/6	64 1/6	7,098 94
" " 1863..	1,050,426 "	8,718 84	8 1/6	57 1/6	4,984 27
" " 1864..	1,395,142 "	14,556 26	7 1/6	50 1/6	7,302 39
" " 1865..	1,993,051 "	33,993 58	6 1/6	43 1/6	14,673 90
" " 1866..	1,613,263 "	26,254 43	5 1/6	36 1/6	9,495 35
" " 1867..	2,001,162 "	28,344 58	4 1/6	29 1/6	8,267 17
To Jan'y 9, 1868..	781,787 "	8,096 95	3 3/6	25 17/6	2,062 47
	11,502,892 lbs.	$140,024 78			$60,287 26

INCREASED PROFIT FROM GLYCERINE SOLD.

For the year ending	Amount received for Glycerine sold.	Quantity of Fat Worked.	Profit at $\frac{1}{5}$ of a cent per lb. of fat worked.	Interest to September 1st, 1871.		
				Years.	Per Cent.	
Dec. 31st, 1862..	$6,048 32	1,502,316 lbs.	$ 3,004 63	$8\frac{2}{3}$	$60\frac{2}{3}$	$1,822 81
" " 1863..	7,543 97	1,050,426 "	2,100 85	$7\frac{2}{3}$	$53\frac{2}{3}$	1,127 46
" " 1864..	16,330 16	1,395,142 "	2,790 28	$6\frac{2}{3}$	$46\frac{2}{3}$	1,302 13
" " 1865..	15,273 70	1,993,051 "	3,986 10	$5\frac{2}{3}$	$39\frac{2}{3}$	1,581 15
" " 1866..	17,804 88	1,613,263 "	3,226 52	$4\frac{2}{3}$	$32\frac{2}{3}$	1,054 00
To Jan'y 9, 1868..	35,777 94	2,782,949 "	5,565 89	$3\frac{33}{36}$	$25\frac{17}{36}$	1,417 76
	$98,774 47	10,337,147 lbs.	$20,674 27			$8,305 31

This makes the total amount for which the plaintiff will be entitled to a decree, September 1st, 1871, $229,291 62. Let a decree be entered, of that date, for that amount, with costs.

GEORGE HARDING, for the Plaintiff.

CHARLES M. KELLER, and STEPHEN D. LAW, for the Defendant.

Circuit Court of the U. S.

SOUTHERN DISTRICT OF NEW YORK.

RICHARD A. TILGHMAN,
vs.
ROLAND G. MITCHELL. } In Equity.

UPON MOTION FOR PROVISIONAL INJUNCTION.

OPINION OF JUDGE BLATCHFORD.

Circuit Court of the United States

FOR THE SOUTHERN DISTRICT OF NEW YORK.

RICHARD A. TILGHMAN
vs.
ROLAND G. MITCHELL.

IN EQUITY.

No. 2.

ON MOTION FOR PROVISIONAL INJUNCTION.

The opinion of the court was delivered August 26th, 1871.

BLATCHFORD, J. This is a motion for a provisional injunction, founded on letters patent granted to the plaintiff October 3d, 1854, for fourteen years from January 9th, 1854, for an "improvement in processes for purifying fatty bodies." The patent was, on the 23d of November, 1867, extended by the Commissioner of Patents, for seven years from January 9th, 1868. The bill was filed in March, 1871. The defendant is the same person who was the defendant in the suit in equity brought against him, in this Court, by the plaintiff, on the original patent

before its extension, and in which suit a decision has just been given by this Court on a hearing on exceptions to the Master's report.

The bill sets forth, that a suit in equity was brought in Ohio, by the plaintiff, in 1859, against one Werk, for infringing the patent, and that a decree was made on it, in 1860, adjudging that the patent was valid. It also sets forth the bringing of the said suit in this Court against the defendant, and the decision therein, on final hearing, adjudging the patent to be valid, and that the defendant had infringed it. It also sets forth, that, in 1868, the plaintiff brought two suits in equity, in Ohio, one against Werk and others and one against Shillito, for infringing the patent, as extended; that the defendants in those suits alleged, in their answers, in defence, that the extension of the patent was void, for want of jurisdiction in the Commissioner of Patents, and for want of due publication, and for want of a proper account of profits, and because of fraud and collusion between the plaintiff and the Commissioner of Patents; that such defendants, also, in their answers, set up, in support of a defence of want of novelty in the invention, various publications and patents, fourteen in number, references to which are specified, so that they can be identified; that such defendants, also, in their answers, alleged, that the plaintiff's invention, as described and claimed in his patent, was not useful and practicable, and, in proof thereof, offered in evidence the testimony of one Moinier, a witness residing in Paris, France, which testimony had originally been taken on the reference before the Master in such first suit against the defendant in this Court, and is on file in this Court, and was admitted by consent of the plaintiff to be read in said two suits under the extended

patent against Werk and others and Shillito; that the defendants in said two suits examined as witnesses the defendant Mitchell and his former partner, Florence Verdin, to prove the want of novelty, of utility, and of practicability in the invention described and claimed in the patent; that Werk and Shillito had been examined as witnesses on the part of the defendant Mitchell, in such first suit against him in this Court; and that said two suits in Ohio, under the extended patent, went to final hearing in May, 1870, and it was decreed that the plaintiff was the original inventor of the invention patented to him, and that the patent and the extension thereof were valid. An affidavit is annexed to the bill, setting forth, that, on the 2d of March, 1871, the defendant was using and working, at his factory, in the city of New York, the same process for decomposing fat into fat acids and glycerine, by the action of water at a high temperature and pressure, in the Wright and Fouché apparatus, which he had been using for several years previously, and since the year 1861; that, in May, 1869, the defendant was decomposing, every week, about forty thousand pounds of fat into fat acids and glycerine, by the action of water at a high temperature and pressure, in the Wright and Fouché apparatus, by the same process which he had been using since the year 1861; that, in his answer to the bill in such first suit against him in this Court, the defendant stated, that he was then decomposing fat into fat acids and glycerine, by the action of water at a high temperature and pressure, in the Wright and Fouché apparatus; and that the said process of decomposing fats, in the Wright and Fouché apparatus, as practised by the defendant, was adjudged by this Court, in November, 1864, to be substantially the same, in prin-

ciple and operation, as that patented to the plaintiff, and to be an infringement thereof.

The defendant opposes the motion on an answer and on affidavits. The answer avers, that the Ohio suit of 1859, against Werk, was decided without a full or complete presentation to the Court of the state of the art bearing upon the branch of manufacture to which the patent relates, and that such decision is not, and was not, in any manner, conclusive as to the real merits of the issue in said cause; that the first suit in this Court against the defendant was decided without a full and complete presentation to the Court of all the testimony bearing upon the issues in the suit, and upon the state of the art relating to the branch of manufacture to which the patent pertains; that the defendant, since such decision, has obtained certain testimony as to the practical operation of the alleged invention described in the patent, as applied or demonstrated by the plaintiff and under his direction, proving its practical inability to produce the results claimed by the plaintiff in his patent; that such testimony is highly pertinent to the issues in said cause, and, if it could have been introduced therein before the final hearing thereof, no decree or final hearing, such as was made, would have been made, but such evidence would have shown the invalidity of the patent, and would have prevented any decree in the suit against the defendant; that, by the decree in the suit, liberty was given to the defendant to give bond in the penal sum of twenty thousand dollars, with a condition to pay, on final decree, either in this Court or in the Supreme Court, on appeal, all sums of money which might be found due from him to the plaintiff on any accounting before the Master, in which case no injunction should issue against

the defendant until a final decree in the cause; that the defendant duly gave such bond, in such sum, and has since continued to carry on his business in the same manner he was doing before the rendering of such decision and the entry of such decree against him, and that the plaintiff has made no application to have such order modified or set aside, or to have any injunction issued; that the Master in said suit, under a reference, has reported that no gains or profits have been proven to have been received by, or to have arisen or accrued to, the defendant, from the manufacture, use or sale of the improvements patented in the plaintiff's patent; that, in such suit against the defendant, the decision of the Court was made under a misapprehension, on its part, as to the mode of operation in the process described in the plaintiff's patent, Mr. Justice Nelson considering that the specification did not require, either that the vessel containing the mixture of water and fatty matter was to be entirely filled therewith, or that no steam was to be permitted in it, whereas, the specification makes both such conditions necessary; that, except for such misapprehension, the decision would not have been against the defendant; that the report of the Master is correct; that the application for the extension of the plaintiff's patent was not made or proceeded with in conformity with law and in such a manner as to give the Commissioner of Patents jurisdiction of the application, and the extension was obtained by fraudulent and deceptive proceedings as against the public, and by collusion between the plaintiff and the then Commissioner of Patents; that the plaintiff, before obtaining his patent in the United States, had obtained in England a patent for the same invention, which English patent had expired previously to the extension of the patent for the United

States, and that no prolongation of the term of the last-named patent could legally be granted under the provisions of the law regulating extensions; that, in the suits brought in Ohio in 1868, the defendants therein did not set up, as a defence, that the extension of the patent was void by reason of want of jurisdiction in the Commissioner of Patents, and the defences therein set up as to the invalidity of such extension were not urged or argued to the Court on final hearing, and were not considered or passed upon by the judge by whom the suits were decided, and it was not decided by the Court that the extension of the patent was valid; that the decision of the Court in the two suits brought in Ohio in 1868 was not founded on the testimony introduced in those suits, and was not a decision on the real merits of those suits, as established by the evidence therein, but such decision was based upon, and declared to be given by reason of, the adjudications previously made in the suit in Ohio and in the suit in this Court; that the judge who rendered the decision declared, in it, that he was not at liberty to consider the questions involved unembarrassed by previous judgments, and that, although the record in the suits, in reference to views which a superior Court might take, contained material additional proofs, they were not such as to authorize the same Court to overrule its former deliberate adjudications, and the cases already decided as to the patent must be followed; and that said judge, after having referred to the defences set up in those suits, used the following language: "I thus briefly advert to the leading objections, solely to show that they are disposed of by the previous cases, and not to discuss them upon principle. Were I at liberty to treat the whole case upon principle, I fear I should be compelled to give the patent a more limited

construction than it has received;" that, in those suits, the Court refused to order an injunction against the defendants therein, but held that a bond should be received from the defendants; that the plaintiff has never applied to practical use the improvements described in his patent; that, as so described, they are incapable of being applied to practical use; that the patent is void, for the reason that no adequate means are described or shown, in the specifications or drawings, whereby the alleged invention can be reduced to practice; that the means of practising such invention, described in the specification and shown in the drawings, and stated in the patent as being, in the belief of the patentee, the best mode of carrying the invention into effect, are pernicious and dangerous, owing to the degree of heat and pressure required, and would also result in the destruction of the glycerine of the fat, and be otherwise impracticable and devoid of utility; that the claim of the patent does not set forth a patentable subject-matter, and that, by reason thereof, the patent is void; that, in view of the state of the art to which the patent pertains, the defendant has a right to use the process he employs, it being a far superior process to that described in the patent, and differing therefrom in principle, in mode of operation, and in effect produced; and that he is now using, and has been using since the 9th of January, 1868, the same process for decomposing fatty acids which he was using at the time of the commencement of the former suit against him, and that he has continually used such process and has never used any other process. The answer further states, that the defendant has, since the 9th of January, 1868, decomposed fat into fat acids and glycerine by a process or method patented to Wright and Fouché, in which water at a high tempera-

ture and under pressure is employed, but an active automatic circulation of the moisture through the fat is provided for, and such circulation is absolutely necessary for the operation of the process, and without such circulation the process would be more expensive than saponification by lime; that the process so used by the defendant differs materially from the process patented to the plaintiff, not only in degree of temperature and pressure, but in the circulation of the moisture through the fat, which is not permitted by the plaintiff's process; that the defendant's process is the same as that referred to in his answer to the bill in the former suit by the plaintiff against him; that the process as employed by him since the 9th of January, 1868, is as follows: The apparatus consists of two boilers connected by two pipes, one of which connects the top of the lower boiler with the upper portion of the upper boiler, and the other connects the bottom of the upper boiler with the lower part of the lower boiler, running through the top of the latter. The lower boiler and a small portion of the upper boiler are filled with hot water, and the remaining portion of the upper boiler is filled to within about two feet of its height, or about ten-twelfths full, with hot fat. Fire is then applied to the lower boiler, and the water subjected to a temperature of about 374° Fahrenheit. The water, being heated, rises, with the steam, through the first-mentioned pipe, to above the surface of the fat, then descends through the fat, with the water formed by the condensation of the steam, to the bottom of the upper boiler, whence it is conducted, by means of the secondly-mentioned pipe, to the lower part of the lower boiler; and this process of circulation is continually repeated. The pressure is run up to about twelve

atmospheres and maintained about twelve hours. The boilers used are about two feet in diameter, the upper boiler being about twelve feet in height and the lower boiler about six feet in height; that the process used by the defendant prior to December, 1860, was substantially as follows: A tank was used, provided with steam-pipes fitted with holes, to let the steam enter the tank. Into this tank was put about a foot of water, and into this tank the fat was thrown and heated by steam, when there was added the milk of lime, with a large excess of water. The tank was then covered and the steaming continued for six or eight hours. This operation being completed, the glycerine produced was drawn off, and the fat acids in combination with the lime shovelled into an adjacent tank and heated by steam, with diluted sulphuric acid. The fat acids thus liberated were then drawn off and settled, and then run into pans to form cakes, which were then subjected to hydraulic pressure, and afterwards pressed in a hot press, until all traces of oleic acid were pressed out. Fourteen pounds of lime and twenty-eight pounds of sulphuric acid were used to each hundred pounds of fat; that, since the 9th of January, 1868, the defendant has decomposed into fat acids and glycerine about four and a half million of pounds of natural fat, saving, by the Wright and Fouché process used by him, about six hundred and thirty thousand pounds of lime, and about eleven hundred and sixty thousand pounds of sulphuric acid; that, by the Wright and Fouché process, used by the defendant since January 9th, 1868, there may have been two per cent. of fat saved, depending upon the care exercised in obtaining the product; and that the solution of glycerine now obtained by the defendant is of greater strength and purity

than that obtained prior to the use by him of the Wright and Fouché process, commenced in December, 1860. The answer then sets up, as establishing the want of novelty in the plaintiff's invention, twenty-one publications and patents. All of these except six were either set up in the answer of the defendant in the former suit against him, or in the answers in the Ohio suits of 1868, or were introduced on the reference before the Master in such former suit against the defendant. Those six are the Encyclopédie Roret, of 1849; the French patent to M. Appert, of 1823, in volume 15 of the Brevets d'Invention, of 1828; the 15th volume of the Journal of the Franklin Institute, of 1848; the English patent to William Hawes, of 1839; the English patent to Samuel Guppy, of 1839; and the English patent to Alexander Alliot, of 1851. The answer also avers, that, upon the questions of novelty, originality, and the prior state of the art, as affecting the validity of the plaintiff's patent and the question of infringement, sixteen of the said twenty-one publications and patents were not cited or offered in evidence by the defendant in the former suit against him, and were not known to the Court at the time the decree was made, and that such evidence would have materially affected the decree in the suit.

I must regard the decisions in the three suits in Ohio, and the decision of Mr. Justice Nelson in the suit in this Court, followed by the decision on the hearing on the exceptions to the Master's report in that suit, and the fact of the extension of the patent, its extension having been, as it appears, opposed by the defendant, on testimony put in by him, as establishing the novelty of the plaintiff's invention and the validity of his patent. So, too, the fact that the use of the Wright and Fouché

process is an infringement of the patent, cannot be doubted.

The objection, that the plaintiff's invention, as described in his patent, cannot produce the result claimed in the patent, has been considered and disposed of adversely to the defendant, in the decision given on the hearing on the exceptions to the Master's report in the former suit against the defendant.

The objection that the decision of Mr. Justice Nelson was made under a misapprehension on his part as to the mode of operation in the process described in the plaintiff's patent, is also without foundation. It is alleged, that Mr. Justice Nelson considered that the plaintiff's specification did not require, either that the vessel containing the mixture of water and fatty matter should be entirely filled therewith, or that no steam was to be permitted in it; and that the specification makes both such conditions necessary. On full consideration, I concur in the views of Mr. Justice Nelson on these points, and have no doubt that his interpretation of the specification in regard to them was correct.

As to the validity of the extension, as it is regular on its face, no question of irregularity or fraud in granting it can be raised by an infringer, in a suit against him for infringement. (Railroad *vs.* Stimpson, 14 Peters, 458; Stimpson *vs.* Railroad, 4 Howard, 404; Rubber Co. *vs.* Goodyear, 9 Wallace, 796; Seymour *vs.* Osborne, 11 Wallace, 543, 545.)

The expiration of the English patent before the patent for the United States was extended, formed no objection to such extension.

In the decision of the Court, given by Judge Emmons, in the two suits brought in Ohio in 1868, he used this

language: "Although the record in this case, in reference to some views which a superior Court may possibly take, contains some material additional proofs," (beyond those in the previous case in Ohio and those before Mr. Justice Nelson in the case in this Court,) "still they are not such as to authorize the same Court to overrule its former deliberate adjudications, and to disregard the judgments of a co-ordinate one, in a case in all respects substantially like it. Especially is this so, where the judge delivering the opinion has taken so leading a part in all the discussions upon this subject in the Court of last resort. After much consideration, I am confident that, without a violation of judicial propriety and the best interests of all who pursue or defend here, the cases already decided between these same parties must be followed. It would greatly impair the influence of the Court and the confidence of the suitors, if any succeeding judge turned it into one of appeal for all questions previously decided. Where doctrines are reconsidered, as often they are and should be, the circumstances of the case must be exceptional, and furnish the justification for the action in each instance where it is taken. There are none such in this case. More than ordinary deliberation attended the previous discussions and judgments." These are wise and sound views, and are fitly applicable to the action of this Court on the present motion. Nothing is now presented to this Court which would authorize it to overrule the deliberate adjudication formerly made by it. That adjudication is fortified by the decisions of the Court in Ohio.

The point urged, that the defendant uses a different degree of heat and a different pressure from those set

forth in the plaintiff's patent, is considered and disposed of by Mr. Justice Nelson, in his opinion.

In support of the objection, that the plaintiff never applied to practical use the improvements described in his patent, and that they are incapable of being applied to practical use, the defendant relies on two letters written by the plaintiff—one dated London, June 25th, 1856, to Thomas Emery & Son, of Cincinnati, and the other dated London, July 20th, 1857, to M. de Fontaine Moreau. But these letters lead to the opposite conclusion. The first letter shows, that the plaintiff had, in factories in London and Paris, exposed the fat and water to a higher heat and pressure for a shorter time, and to a lower heat and pressure for a longer time, and had come to the conclusion that the latter mode of operation was the more convenient one, and had, in connection with it, used an agitator, in an ordinary digester; and that he was about putting up, at Price & Co.'s works, in London, an apparatus on that plan, capable of heating several tons per day. The lower heat and pressure are within the patent, as has been shown by Mr. Justice Nelson; and the question of the use of an agitator was considered in the opinion given on the hearing of the exceptions to the Master's report in the former suit in this Court against the defendant. The second letter shows, that, at the time it was written, the plaintiff's process was being successfully worked in the factory of Price & Co., in London, at a moderately low pressure. In 1860, the plaintiff's process was put into practical use in Cincinnati, in an old form of apparatus. In 1862, it was put into use in Cincinnati, under license from the plaintiff, in another old and different form of apparatus; and, by 1867, ten factories in the United States were working the process under such

license. In September, 1860, the defendant was notified by the plaintiff, in writing, not to infringe the patent by using the process he has used; but, in December, 1860, he commenced to practically operate with the Wright and Fouché apparatus, and he has ever since continued to do so.

The defendant, in using the apparatus described by him in his answer as that which he uses, uses the plaintiff's process, and infringes the patent. The process he used down to the time he adopted the plaintiff's process was the lime-saponification process. He now saves the lime and sulphuric acid which he used in that process, and also saves fat and obtains a solution of glycerine of greater strength and purity. The answer admits, that, up to the time it was put in, the defendant had, since the 9th of January, 1868, decomposed into fat acids and glycerine about 4,500,000 pounds of fat, and saved, by the use of the Wright and Fouché apparatus, about 630,000 pounds of lime and about 1,160,000 pounds of sulphuric acid. If the price of lime be taken at only $\frac{75}{100}$ of a cent per pound, and the price of sulphuric acid at only 2½ cents per pound, the saving of lime for forty months would have been $4725, and the saving of sulphuric acid for the same time would have been $29,000. The saving of fat, at two per cent. of the fat worked, would have been 90,000 pounds for the forty months, equal, at 12 cents per pound, to $10,800. If the increased profit on glycerine, by reason of its greater strength and purity, be called one-fifth of a cent per pound on the fat worked, such profit for the forty months would have been $9000. Thus, the defendant may be properly regarded as having saved, in forty months, by the use of the plaintiff's process, $53,525, or at the rate of $1338.12 per month

The bases of calculation are those established on the hearing before the Master in the former suit in this Court against the defendant, and the result shows the direct saving or profit which the defendant is making by continuing his infringement.

The defendant points to nothing in the six publications and patents which his answer sets up, and which had not, in previous suits, been set up or introduced in evidence, which goes to destroy the novelty of the plaintiff's invention, and there is nothing in the other fifteen to justify the withholding of an injunction.

The great merit and value of the plaintiff's invention, not only in the manufacture of candles, but as a process for obtaining pure glycerine for use in the arts, are shown by evidence, and it is quite time that he should have effective protection. After the decision in his favor by Mr. Justice Nelson, on final hearing, a perpetual injunction would undoubtedly have been ordered to issue, as a part of the interlocutory decree, but for some special considerations which induced the judge to suspend the injunction until the final decree, if the defendant should give a bond in $20,000, conditioned to pay, on final decree, either in this Court or in the Supreme Court, all sums of money which should be found due from him to the plaintiff on the accounting before the Master, on the filing and confirmation of the report on such accounting. The bond was given and no injunction was issued. If the original term of the patent had not expired, a perpetual injunction would now be ordered, as a part of the final decree. The plaintiff ought to be in no worse position because his patent has been extended and he is compelled to make the present motion. I see no ground for allowing a bond to be given in this suit, as security,

in place of issuing an injunction. The case is a clear one, on all points. Let an injunction issue, according to the prayer of the bill.

George Harding, for the plaintiff.

Charles M. Keller and Stephen D. Law, for the defendant.